



OFFICE OF THE
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SUBJECT: Standards for Animal Surgery within USUHS and USUHS-Sponsored Programs

References: *See Enclosure 1*

Purpose: This Policy Memorandum cancels USUHS Instruction 3217^a and establishes and defines the standards that all animal surgeries will be accomplished within the USUHS and USUHS-sponsored programs.

Applicability: This Policy Memorandum applies to USUHS personnel performing any surgical procedures on animals.

Definitions: *See Enclosure 2.*

Policy: It is the intent of the Veterinary Surgery Division (VSD), LAM to provide surgical support/assistance in a timely and professional manner to all personnel working under the auspices of USUHS teaching or research protocols that require surgical preparation and utilization of animals. Availability for use will be on a first come, first serve, basis, after requirements for medical student training and teaching have been satisfied.

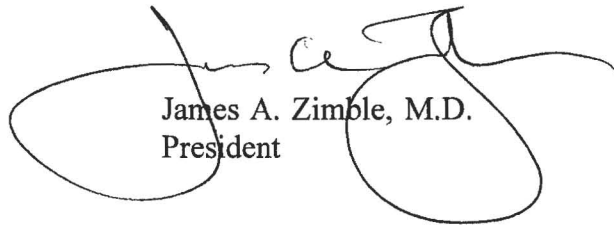
Surgical manipulation of animals used in research introduces significant variables that may complicate the analysis of data and confound the experimental results. The variables may be minimized by careful presurgical selection of healthy animals, the use of appropriate surgical techniques, and the provision of good postsurgical care, including analgesics when required, and high quality husbandry. Procedures that minimize the imposed variables will maximize the animals' well-being.

Responsibilities:

1. The Chief, Veterinary Surgery Division shall:
 - a. Coordinate the use of all VSD facilities;
 - b. Grant exceptions to guidelines;
 - c. Ensure that the standards of the PHS, NIH Publication^b are followed; and
 - d. With the approval of the Executive Secretary of the Laboratory Animal Review Board (LARB) and/or Director, LAM, approve any exceptions to the Operating Guidelines mentioned in *Enclosure 3.*

2. The Principal Investigator shall:
 - a. Schedule procedures in advance; and
 - b. Coordinate requirements with VSD or Veterinary Medicine Division (VMD).

Procedures: *See Enclosure 3.*



James A. Zimble, M.D.
President

Enclosures:

1. References
2. Definitions
3. Procedures

REFERENCES

- (a) USUHS Instruction 3217, "Standards for Animal Surgery within USUHS and USUHS-Sponsored Programs," dated January 24, 1990 (hereby cancelled)
- (b) Public Health Service (PHS), National Institutes of Health Publication, "Guide for the Care and Use of Laboratory Animals," dated 1996

DEFINITIONS

1. Surgery: Any procedure during which an incision is made.
2. Nonsurvival Surgery: Any surgical procedure accomplished on an anesthetized animal after which the animal is euthanized without being permitted to recover consciousness.
3. Survival Surgery: Any surgical procedure accomplished on an animal after which the animal is allowed to regain consciousness, regardless of how long the animal is kept before it is euthanized.
4. Major Surgery: Any surgical procedure that penetrates and exposes a body cavity or produces substantial impairment of physical or physiological functions. Major surgical procedures include but are not limited to procedures such as laparotomy, thoracotomy, craniotomy, joint replacement, and limb amputation.
5. Minor Surgery: A surgical procedure that does not expose a body cavity and causes little or no physical impairment. Minor surgical procedures include but are not limited to such procedures as wound suturing, peripheral-vessel cannulation, common farm animal procedures (castration, dehorning, prolapse repair), and procedures commonly performed on an "outpatient" basis in clinical veterinary practice.
6. Multiple Surgery: Accomplishing more than one surgical procedure on the same animal at different times.
7. Aseptic Surgery: The performance of a surgical procedure using precautions against the introduction of infectious microorganisms and therefore reducing the possibility of introduction to the lowest possible level. Aseptic techniques include but are not limited to the preparation of the patient (such as hair removal and disinfection of the surgical site), preparation of the surgeon (such as donning decontaminated surgical attire, performing a surgical scrub and donning sterile surgical gloves), sterilization of instruments, supplies and implanted materials along with the use of operative techniques to reduce the likelihood of infection.
8. Clean Technique: Surgical technique in which sterile instruments, surgical gloves, and aseptic procedures are used to prevent clinical infection, some effort is made to disinfect the surgical site on the animal and other features of aseptic technique are incorporated as practical.

PROCEDURES

1. Anesthesia and Analgesia

a. The proper use of anesthetics, analgesics, and tranquilizers in laboratory animals is necessary for humane and scientific reasons. In accordance with the Animal Welfare Act, the choice and use of the most appropriate drug(s) are matters for the professional judgment of the attending veterinarian.

b. If a procedure must be conducted without the use of an anesthetic, analgesic, or tranquilizer - because such use would defeat the purpose of an experiment - the procedure must be directly supervised by the responsible investigator.

c. Muscle relaxants, neuro-muscular blocking drugs, or paralytic drugs (e.g., succinylcholine or other curariform drugs) are not anesthetics and they are not to be used alone for surgical restraint. They may be used for surgery to paralyze skeletal muscles while an animal is fully anesthetized.

2. Surgery and Postsurgical Care

a. Appropriate facilities and equipment should be available for surgical procedures. A facility intended for aseptic surgery should be used only for that purpose and should be maintained and operated to ensure its cleanliness. Aseptic techniques should be used on all animals undergoing survival surgery. A clean designated laboratory area may be used for rodents survival surgery.

b. Surgery should be performed only by persons qualified by training and experience. Provisions should be made for instruction in aseptic surgery for those who require training.

c. Postsurgical care should include observation of the animal until it has recovered from anesthesia, administration of supportive fluids and drugs, care of the surgical incisions, and observation to ensure the animal's physical comfort and optimal recovery. Appropriate medical records should be maintained. Trained personnel should be available to deal with emergencies. Appropriate facilities and equipment should be available for the postsurgical care of animals.

3. Multiple Survival Surgery

Generally speaking, multiple-survival surgical procedures on a single animal are discouraged. However, under special circumstances, more than one major surgical procedure on a single animal may be permitted with the approval of those concerned with institutional animal care policies, provided they are related components of a research or instructional project, they are performed with adequate anesthesia, after-care is designed to alleviate postsurgical pain, and adequate postoperative care is provided. Cost alone is not an adequate reason for performing multiple-survival surgical procedures on an animal but such procedures may be justified in the interest of conserving members of a rare species.

4. Nonsurvival Surgery

a. Nonsurvival surgical procedures may be accomplished in an appropriate laboratory in the USUHS complex. General anesthetics must be used and an appropriate level of anesthesia maintained throughout the procedures. Requests for exceptions are to be directed to the Executive Secretary, LARB, and must be approved by the LARB.

b. Regardless of the ethical and humane nature in which a nonsurvival procedure is accomplished, the dissection and accompanying "bloody scene" may offend the sensibilities of some incidental observers. Because of this, the area where the nonsurvival procedure is done will be screened in such a manner as to prevent visitors and staff from inadvertently seeing the ongoing activity (persons passing by in the corridor should not be able to observe the experiment in progress).

5. Survival Surgery

a. General - All survival surgery shall be accomplished in accordance with the minimum standards that would be used for similar procedures accomplished on humans.

b. Minor Surgery - Minor surgical procedures in general shall be accomplished in the same manner as major surgical procedures with deviations granted only by the Director, LAM or the Chief, VSD (e.g., an arterial vessel catheterization may be performed with above approval in a procedure room if all other aseptic conditions are met).

(1) Rodents - Minor surgery may be accomplished in a nonsurgical facility (e.g., a designated area of an investigator's laboratory) but should be performed using aseptic techniques.

(2) All non-rodent animals - Minor surgery may be accomplished in a nonsurgical facility in LAM, only with the approval of the Director, LAM or the Chief, VSD. Minor surgical procedures should always be accomplished in an aseptic manner, as appropriate for the species involved.

c. Major Surgery

(1) Rodents - Major surgery may be accomplished in a nonsurgical facility (e.g., a designated area of an investigator's laboratory) but should be performed using aseptic techniques.

(2) Non rodent-animals - All major surgery involving these species shall be accomplished using aseptic techniques in a facility reserved for that function.

6. Postsurgical Care

a. Analgesia - Appropriate analgesic agents shall be used at all times if the animal is subject to postsurgical pain. Any deviations from the protocol shall require an exception by the Director, LAM, for the case in progress and any future surgeries shall not begin until an amended protocol is approved.

b. Nursing and Husbandry Care - All animals must receive appropriate postsurgical nursing and husbandry care. Assistance in accomplishing this care may be requested in advance from the Veterinary Medicine Division. The fact that the postsurgical period happens to fall after 1700 hours or on a weekend is not an excuse for neglecting postsurgical care.

Enclosure 3

7. Facilities

Facilities designated as aseptic surgical areas must be reserved for that purpose (e.g., they may not be used for general storage, necropsies, or general animal treatment, and they require special surgical attire to enter).

8. Exceptions

Exceptions to these standards must be approved on an individual basis by the Director, LAM.